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من سلسلة كتب المعاصر
هدية مجانية غير مخصصة للبيع

EL-MOASSER
SERIES

SCIENCE

Final Examination Models
on Second Term 2025

By A Group Of Supervisors
طبقا لمواصفات الورقة الامتحانية

GPS

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3rd Prep.
2025
SECOND TERM

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Model Exam 1

Total mark 20

Answer the following questions :

Question 1 — 5 marks

A Choose the correct answer :

1. The oxygen gas (O_2) evolves by heating of ..... compound.
   a. $NaNO_3$ b. $CuSO_4$ c. $CuCO_3$ d. $Cu(OH)_2$
2. The measuring unit of electric current intensity is .....
   a. ohm. b. ampere. c. coulomb. d. volt.
3. According to Mendel's first law, the hereditary factors ..... when gametes are formed.
   a. combine b. fuse c. segregate d. disappear

B Give reasons for :

1. Pituitary gland is called the master gland.
2. Some elements are called radioactive elements.

C Calculate the electric current intensity that flows through a cross–section of a wire, if a charge of 5400 coulomb passes through in 5 hours.

Question 2 — 5 marks

A Complete the following sentences :

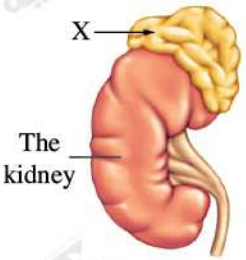
1. ..... enzyme in sweet potato acts as a ..... that increases the rate of H_2O_2 decomposition.
2. Electric cell produces ..... current, while the dynamo produces ..... current.
3. Pea plant can be easily ..... and its life cycle is .....

B What happens when ... ?

1. Adding diluted HCl to sodium carbonate salt.
2. Two charged conductors of different electric potential are touched.

C From the opposite figure :

1. What is the name of gland (X) ?
2. State the function of the hormone that secreted from the gland (X) ?



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Question 3 — 5 marks

A Put (✓) or (✗) :

1. The acquired traits are transmitted from one generation to another. ( )
2. Thyroid gland secretes a hormone that organizes the growth and development of sexual organs in the human body. ( )
3. The first to be affected by nuclear radiation in human body is bone marrow. ( )

B What is meant by ...?

1. The electric current.
2. Rate (speed) of chemical reaction.

C Explain on genetic bases : The properties of the produced generation from self–pollination in a pea plant that has impure yellow seeds, knowing that the dominant gene is symbolized by (Y) & the recessive one is symbolized by (y).
Mention the ratio of the produced individuals.

Question 4 — 5 marks

A Cross out the odd word :

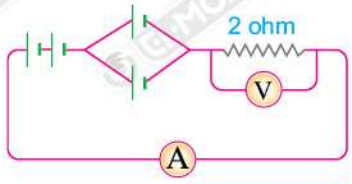
1. Catalyst – Temperature – Concentration of resultants – Nature of reactants.
2. Wide eyes – No dimples – Presence of freckles – Straight hair.
3. Chromosome – Nucleic acid – Hydrochloric acid – protein.

B Compare between :

1. Heating of metal oxide and metal hydroxide.
2. Dwarfism and gigantism (according to the reason).

C In the opposite figure :

If the electromotive force of each cell is 2 volt, find :
(1) The e.m.f of the battery. (2) The reading of ammeter.



Model Exam 2

Total mark ..... / 20

Answer the following questions :

Question 1 — 5 marks

A Write the scientific term of each of the following :

1. The breaking up of bonds in the reactants molecules and formation of new bonds in the products molecules.
2. The quantity of electric charges that flow through a conductor in a time of one second.
3. Parts of DNA that present on the chromosomes and carry the hereditary traits of the individual.

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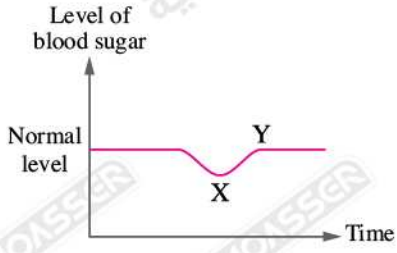
B What happens when ... ?

1. Exposing a man for a large dosage of atomic radiation for a short period of time.
2. Increasing the temperature of the chemical reaction.

C From the opposite graph :

What is the hormone that causes the change in the level of blood sugar from X to Y ? And what is the gland that secretes this hormone ?



Question 2 — 5 marks

A Correct the underlined words :

1. **Direct** electric current is produced from electric generators.
2. Nitrogen pentoxide gas is decomposed into nitrogen dioxide gas and **nitrogen** gas.
3. The **progesterone** hormone is responsible for the appearance of female secondary sex characters.

B Study the following equations then answer the questions :

$2(X) + 2Na \longrightarrow 2NaOH + (Z) + Heat$

$CuO + (Z) \longrightarrow Cu + (X)$

1. Write down the chemical formula for (X) and (Z).
2. Mention the type of reaction in both equations respectively.

C Give reasons for :

1. Mendel's first law is known as the law of segregation of factors.
2. Using nickel filings in hydrating oil instead of pieces of nickel.

Question 3 — 5 marks

A Put (✓) or (✗) :

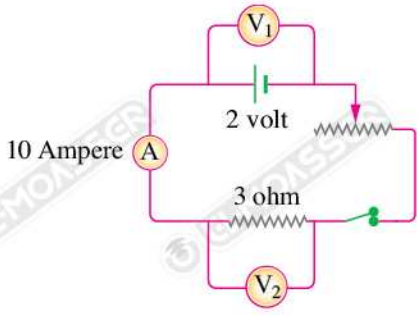
1. The reaction : $Cl_2 + 2e^- \longrightarrow 2Cl^-$, represents oxidation process. ( )
2. The free ear lobe is a dominant trait. ( )
3. The calcitonin hormone controls the level of calcium in the human body. ( )

B Compare between :

1. Alternating current and direct current. (according to: Use – Distance of transferring it).
2. Ionic compounds and covalent compounds. (in terms of speed of chemical reaction).

C In the opposite electric circuit. Calculate :

1. Reading of voltmeter V_1 When the key is opened.
2. Reading of voltmeter V_2 When the key is closed.



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Question 4 — 5 marks

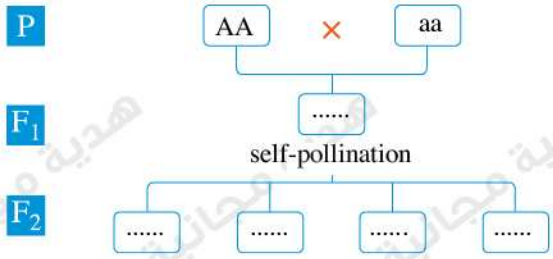
A Complete the following sentences :

1. The traits that are not transmitted from one generation to another is called .....
2. Mendel removed the stamens from the flowers of pea plants before the anthers become mature to prevent ..... pollination.
3. $2NaNO_3 \xrightarrow{\Delta}$ ..... + ...

B Mention one importance of :

1. Rheostat.
2. Growth hormone.

C Complete the following diagrams :



Total mark 20

Model Exam 3

Answer the following questions :

Question 1 — 5 marks

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Ohm	a. is the reaction between an acid and an alkali to form salt and water.
2. The speed of chemical reaction	b. e.m.f of the battery = e.m.f of one cell × the number of similar cells.
3. Neutralization reaction	c. is the resistance of a conductor which allows the passing of an electric current intensity of (1) ampere when the potential difference between its two terminals equals (1) volt.
	d. increased by increasing the concentration of the reactants.

B Mention the gland which secretes each of the following hormones :

1. Progesterone hormone.
2. Growth hormone.

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C **You have 4 similar electric cells. The potential difference of each one is 1.5 volt.**

Illustrate by drawing how you connect them to get batteries of e.m.f of :

1. (6 volt).
2. (4.5 volt).
3. (3 volt).
4. (1.5 volt).

Question 2 — 5 marks

A **Put (✓) or (✗) :**

1. The alternating electric current can be converted into a direct electric current. ( )
2. Copper sulphate decomposes by heat into copper oxide and sulphure dioxide gas. ( )
3. The iron element shares in the composing of thyroxin hormone. ( )

B **What are the results of ... ? with writing symbolic equation :**

1. Adding silver nitrate solution to sodium chloride solution.
2. Heating copper carbonate.

C **Give reasons for :**

1. Radiation has genetic effects.
2. Mendel chose the pea plant in conducting his experiments.

Question 3 — 5 marks

A **Complete the following sentences :**

1. The trait that completely disappears from all individuals at the first generation in Mendel's experiments is ..... trait.
2. The reactions of ionic compounds are fast, because they decompose into .....
3. Adrenalin hormone which stimulates body's organs to respond to emergencies is secreted from .....

B **Study the following figures, then answer :**

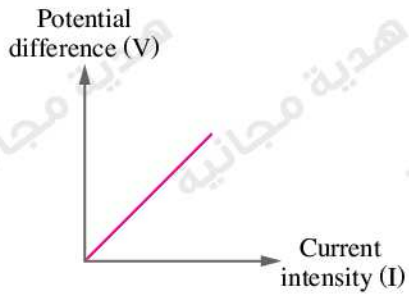

Figure (1)

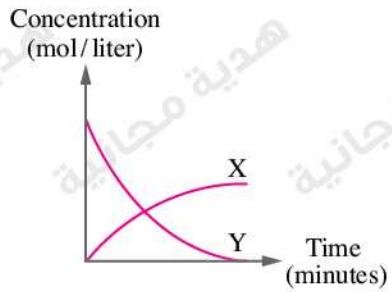

Figure (2)

In figure (1) :

1. Represents ..... law.
2. Electric current intensity is ..... proportional with electric potential difference.

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In figure (2) :

During the chemical reaction :

3. Curve (X) illustrates the change in concentration of .....
4. Curve (Y) illustrates the change in concentration of .....

C Explain on genetic bases the characteristics of the generation resulting from the mating of two plants, both have hybrid red flower, then find the ratio of the resulting individuals.

(**Notes :** (R) is a symbol of a dominant gene, (r) is a symbol of a recessive gene).

Question 4 — 5 marks

A Cross out the odd word :

1. Hair colour – Number of fingers – Blood group – Speaking in many languages.
2. Volt/Ampere – Coulomb/sec. – Ampere – Volt/Ohm.
3. Calcium – Aluminium – Copper – Potassium.

B What is meant by ...?

1. Oxidation process.
2. Endocrine glands.

C Calculate the amount of work needed to pass an electric charge 500 coulomb across a conductor with a resistance 3 ohm and the electric current intensity passes through it 2 ampere.

Model Exam 4

Total mark
.....
20

Answer the following questions :

Question 1 — 5 marks

A Write the scientific term of each of the following :

1. It is a chemical substance that controls and organizes most of the vital activities and functions in the bodies of living organisms.
2. They are the traits that aren't transmitted from one generation to another .
3. It is the measuring unit of absorbed radiation.

B Give reasons for :

1. The voltmeter is connected with the two poles of the battery in an opened electric circuit.
2. A red precipitate is formed on adding zinc metal to copper sulphate solution.

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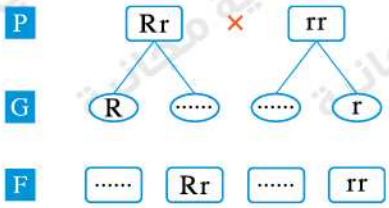
C **Complete the diagram :**



Question 2 — 5 marks

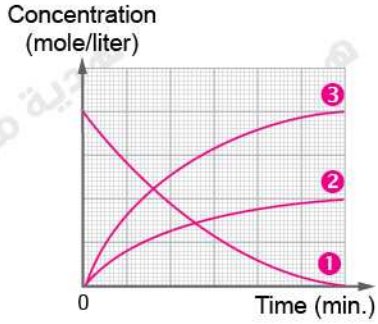
A **Correct the underlined words :**

1. $Fe + 2HCl \longrightarrow \underline{FeCl_3} + H_2\uparrow$
2. The **kinetic** energy is converted into electric energy in dry cells and batteries.
3. Mendel's second law is called the law of **segregation of factors**.

B **The opposite figure represents the rate of thermal decomposition of sodium nitrate :**

(a) Write the balanced symbolic equation of this reaction.

(b) Replace the numbers on the figure by suitable substances from the equation.



C **Draw the electric circuit used to verify Ohm's law, then state Ohm's law and its mathematical relation.**

Question 3 — 5 marks

A **Choose the correct answer :**

1. The ..... hormone liberates the needed energy from the food stuff.
   a. growth b. estrogen c. thyroxin d. adrenalin
2. ..... is a non–radioactive element.
   a. Radium b. Uranium c. Zerconium d. Iron
3. When there is a sudden decrease in the car speed, the sodium azid is decomposed into ..... gas.
   a. N_2 b. H_2 c. O_2 d. CO_2

B **Mention one importance of :**

1. Ohmmeter. 2. Nuclear energy in industry.

C **Compare between :**

1. Testes and ovaries. (from the point of the produced hormones).
2. The dominant trait and the recessive one. (according to definition and examples).

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Question 4 — 5 marks

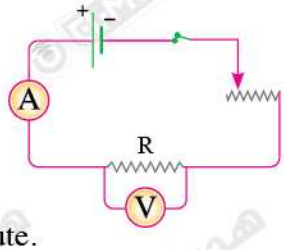
A Put (✓) or (✗) :

1. The atom's proton is considered the nuclear energy store. ( )
2. Oxidase enzyme found in sweet potato. ( )
3. Genes are parts of DNA found in the cytoplasm of the cell. ( )

B What happens when ... ?

1. Glucose sugar level is increased in blood.
2. The quantity of electricity that passes through a cross-section of a conductor is increased to the double at the same time.

C In the shown figure in front of you, if the reading of ammeter is 2 ampere, and the reading of voltmeter is 8 volt. Calculate :



(a) The value of resistance R.

(b) The quantity of electricity passing through the circuit in one minute.

Model Exam 5

Total mark 20

Answer the following questions :

Question 1 — 5 marks

A Choose the correct answer :

1. On heating copper sulphate, a ..... colour is formed.
   a. black b. green c. blue d. red
2. The ammeter is used to measure the ..... in the electric circuit.
   a. potential difference b. current intensity
   c. resistance d. e.m.f
3. The radioactive phenomenon was discovered by the scientist .....
   a. Ohm. b. Becquerel. c. Ampere. d. Volt.

B Study the following two figures (1) and (2), then complete the spaces by suitable words :

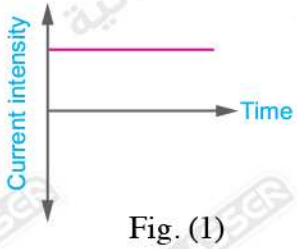


Fig. (1)

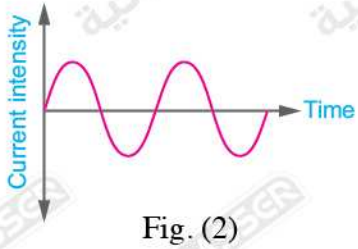


Fig. (2)

(a) Figure (1) represents ..... electric current that produced from ..... which changes ..... energy into electric energy.

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(b) Figure (2) represents ..... electric current that produced by ..... which changes ..... energy into electric energy.

C Define the following :

1. Hereditary traits.
2. Chemical activity series.

Question 2 — 5 marks

A Put (✓) or (✗) :

1. Reaction of iron filings with sulphuric acid becomes slower than the reaction of a iron block of the same mass with the same acid. ( )
2. The measuring unit of absorbed radiation is curie. ( )
3. Thyroid gland is known as the master gland. ( )

B Put the following words (from between brackets) in the right space in the following statements :

(glucagon – a direct – thyroxine – oxidase – an alternating – insulin)

1. ..... is secreted when the level of glucose in the blood decreases.
2. The electric current produced by the electric generator (dynamo) is ..... current.
3. ..... enzyme is found in sweet potato and increases the speed of the chemical reaction.
4. Hormone ..... plays the main role in food assimilation process in the body.

C When mating a hybrid black male mouse with a hybrid black female mouse, their mating resulted in black and brown individuals. Explain on genetic bases, the genetic structure of the parents and gametes, explaining the ratio between the produced individuals from this mating ?

Question 3 — 5 marks

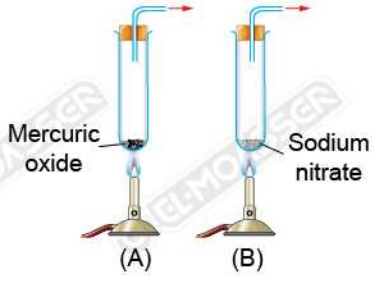
A Correct the underlined words :

1. **Oxidizing agent** is a chemical process in which an atom of the element loses an electron or more during a chemical reaction.
2. The unit of measuring the quantity of electric charges is **joule**.
3. The two scientists **Badel and Tatum** made a model for DNA molecule.

B From the opposite two figures :

(a) What is the colour of the substance in the tubes (A) & (B) before and after heating ?

(b) What is the name of the evolved gas in both tubes ? How can you detect it ?



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C Give reasons for :

1. Endocrine glands are called by this name.
2. The rheostat is used in the electric circuit.

Question 4 *5 marks*

A Complete the following statements :

1. $NaCl + AgNO_3 \longrightarrow$ ..... + ...
2. Nuclear energy can be used in agricultural field to ..... and to improve .....
3. The skill of swimming is an example of ..... traits, while the blood group is an example of ..... traits.

B What happens when ...?

1. If the secretion of growth hormone is increased in childhood.
2. Two conductors having the same electric potential are connected together with a wire.

C Calculate the potential difference between the two ends of a vacuum cleaner whose resistance is 22 ohm and the current intensity passing through is 10 ampere.

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EL-MOASSER

Answers

of Model Exams

SCIENCE

By A Group of Supervisors

3rd Prep.
2025

SECOND TERM

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Model Exam 1

1

(A) 1. a 2. b 3. c

(B) 1. Because it secretes hormones that regulate the activities of most of other endocrine glands.

2. Because they release unseen rays spontaneous as a result of their atom's nuclei containing a number of neutrons more than the number required for its stability.

(C) $I = \frac{q}{t} = \frac{5400}{5 \times 60 \times 60} = 0.3$ ampere.

2

(A) 1. Oxidaze – catalyst
2. direct – alternating
3. planted – short.

(B) 1. An effervescence occurs due to the evolving of bubbles of carbon dioxide gas.

$$Na_2CO_3 + 2HCl \xrightarrow{dil} 2NaCl + H_2O + CO_2\uparrow$$

2. The electric current will flow from the conductor that has the higher electric potential to the other of lower electric potential until their electric potential become equal.

(C) 1. Adrenal gland.

2. Adrenalin hormone stimulates organs to respond to emergencies.

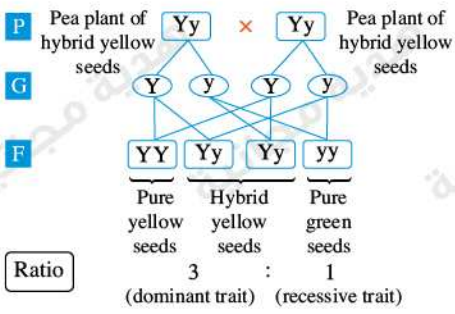
3

(A) 1. (✗) 2. (✗) 3. (✓)

(B) 1. It is the flow of electric charges through a conductor.

2. It is the change in the concentration of reactants and the resultants in a unit time.

(C)



4

(A) 1. Concentration of resultants.
2. Wide eyes.
3. Hydrochloric acid.

(B) 1. Heating of metal oxide and metal hydroxide :

Heating of metal oxide	Heating of metal hydroxide
Metal oxide decomposes by heat into metal and oxygen gas evolves. Ex. : $2HgO \xrightarrow{\Delta} 2Hg + O_2\uparrow$	Metal hydroxide decomposes by heat into metal oxide and water vapour. Ex. : $Cu(OH)_2 \xrightarrow{\Delta} CuO + H_2O\uparrow$

2. Dwarfism and gigantism :

Points of comparison	Dwarfism	Gigantism
Reason :	Decrease in secretion of the growth hormone at the childhood.	Increase in secretion of growth hormone at the childhood.

(C) 1. The e.m.f of the battery = 2 + 2 + 2 = 6 volt.

2. The reading of the ammeter $= \frac{V}{R} = \frac{6}{2} = 3$ ampere.

Model Exam 2

1

(A) 1. Chemical reaction.
2. Electric current intensity.
3. Genes.

(B) 1. This may lead to the damage of :

- Bone marrow.
- spleen.
- Digestive system.
- Central nervous system.

2. The speed of chemical reaction increases.

(C) Glucagon hormone which secreted from pancreas.

2

(A) 1. Alternating 2. oxygen
3. estrogen

(B) 1. (X) is H_2O (Z) is H_2 gas

2. First reaction is a simple substitution reaction.

Second reaction is an oxidation and reduction reaction.

(C) 1. Because the two factors of the hereditary trait segregate from each other during the formation of gametes.

2. Because the speed of chemical reactions increases by increasing the surface area.

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3

(A) 1. (✗) 2. (✓) 3. (✓)

(B) 1. Alternating current – direct current

Points of comparison	Alternating current	Direct current
1. Use	It is used in lighting houses and in operating electric appliances.	It is used in electroplating processes and in operating of some electric appliances.
2. Distance of transferring it	It can be transferred for long distances.	It cannot be transferred for long distances

2. Ionic compounds ⟶ fast reactions.

Covalent compounds ⟶ slow reactions.

(C) 1. $V_1 = 2$ volt

2. $V_2 = R \times I = 3 \times 10 = 30$ volt.

4

(A) 1. acquired traits. 2. self

3. $2NaNO_2 + O_2\uparrow$

(B) 1. It is used to control the current intensity and potential difference in the electric circuit.

2. - It controls the speed of growth rate of body muscles, bones and other organs.

- It determines the height that the person will reach when becomes a fully grown.

(C) F_1 Aa

F_2 AA Aa Aa aa

Model Exam 3

1

(A) 1. c 2. d 3. a

(B) 1. Ovary gland. 2. Pituitary gland.

(C) 1. (6 volt)

2. (4.5 volt)

3. (3 volt) (or)

4. (1.5 volt)

2

(A) 1. (✓) 2. (✗) 3. (✗)

(B) 1. A white precipitate of silver chloride is formed

$NaCl + AgNO_3 \longrightarrow NaNO_3 + AgCl\downarrow$

2. A black substance of copper oxide is formed and carbon dioxide gas evolves.

$CuCO_3 \xrightarrow{\Delta} CuO + CO_2\uparrow$

(C) 1. Because radiation causes changes in the sex chromosomes composition for living organisms.

2. Due to :
- It is easy to be planted and it grows fast.
- Its life cycle is short.
- Its flowers are hermaphrodite, so it can be self-pollinated.
- It can be easily artificially pollinated.
- It produces large numbers of plants in a generation.
- It has several pairs of easily recognized contrasting traits.

3

(A) 1. recessive 2. ions.

3. adrenal gland.

(B) 1. Ohm's 2. directly

3. products. 4. reactants.

(C)

P	Rr	×	Rr	
G	R	r	R	r
F	RR	Rr	Rr	rr

Plants with red flowers : Plants with white flowers

3 (dominant trait) : 1 (recessive trait)

4

(A) 1. Speaking in many languages.

2. Volt / Ampere. 3. Copper.

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(B) 1. A chemical process where the atom loses an electron or more.
2. They are ductless glands that secrete their hormones directly in blood without passing through ducts.

(C) 1. $V = R \times I = 3 \times 2 = 6$ volt
2. $W = V \times q = 6 \times 500 = 3000$ joule.

Model Exam 4

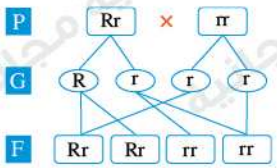
1

(A) 1. Hormone. 2. Acquired traits.
3. Sievert.

(B) 1. To measure the electromotive force of the battery.
2. Because zinc comes before copper in the chemical activity series, so it replaces copper in copper sulphate solution and copper precipitates as a red ppt.

$$Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu \downarrow$$

(C)



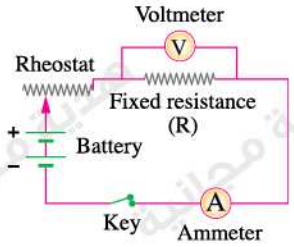
2

(A) 1. $FeCl_2$ 2. chemical
3. independent assortment of hereditary factors.

(B) a. $2NaNO_3 \xrightarrow{\Delta} 2NaNO_2 + O_2\uparrow$

b. 1. Sodium nitrate. 2. Oxygen gas.
3. Sodium nitrite.

(C)



The electric current intensity passing through a conductor is directly proportional to the potential difference across it at a constant temperature.

i.e. $V \propto I$ $\therefore V = \text{Constant} \times I$

The constant value is given by the symbol (R) and it is equal to the resistance of the conductor.

$\therefore V = R \times I$

3

(A) 1. c 2. d 3. a

(B) 1. It is used for measuring the electric resistance.
2. To discover defects in the manufactured products.

(C) 1. **Testes :** Testosterone hormone.
Ovaries : Estrogen and progesterone hormones.

2. **The dominant trait and the recessive trait :**

Points of comparison	The dominant trait	The recessive trait
Definition :	It is the trait that appears when aggregation of two similar genes of the dominant trait or one gene of the dominant trait with a gene of recessive trait.	It is the trait that appears only when aggregation of two similar genes of recessive trait.
Example :	The trait of yellow colour seeds of pea plant.	The trait of green colour seeds of pea plant.

4

(A) 1. (✗) 2. (✓) 3. (✗)

(B) 1. Pancreas responses by secreting insulin hormone to reduce the percentage of glucose sugar in blood.
2. The electric current intensity will increase to the double.

(C) a. The resistance $(R) = \frac{V}{I} = \frac{8}{2} = 4$ ohm.

b. The quantity of electricity $(q) = I \times t = 2 \times 60 = 120$ coulomb.

Model Exam 5

1

(A) 1. a 2. b 3. b

(B) a. direct – electrochemical cells – chemical
b. alternating – electric generators – kinetic

(C) 1. They are the traits that are transmitted from one generation to another.
2. It is the arrangement of metals in a descending order according to the degree of their chemical activity.

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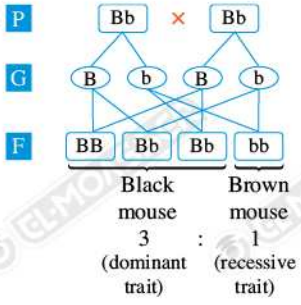
2

(A) 1. (✗) 2. (✗) 3. (✗)

(B) 1. glucagon 2. an alternating

3. oxidase 4. thyroxine

(C)



3

(A) 1. Oxidation process 2. coulomb.

3. Watson and Crick

(B) a. **- Before heating :**

Tube (A) : Red Tube (b) : White

- After heating :

Tube (A) : Silver Tube (b) : Yellowish white

b. Oxygen gas which can be detected by approaching burning match, the glowing of match increases.

(C) 1. Because they secrete their hormones directly in blood without passing through ducts.

2. To control the electric current intensity passing through the circuit and the electric potential difference in the different parts of the circuit.

4

(A) 1. $NaNO_3 + AgCl \downarrow$

2. eliminate pests – some plants races.

3. acquired – hereditary

(B) 1. A continuous growth in the limb's bones, so the person becomes a giant.

2. No electric current will pass through them.

(C) $V = R \times I = 22 \times 10 = 220$ volt.

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